AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0030] of the disclosure with:

A1 Cont'd

Please refer to Fig.2, which is a schematic diagram of a jet 100 according to one embodiment of the present invention. The jet 100 is in flow communications with a reservoir 110 and comprises a substrate 112 positioned above the reservoir 110 and an orifice layer 120 positioned on the substrate 112 so that a plurality of chambers 122 are formed between the orifice layer 120 and the substrate 112. The substrate 112 comprises a manifold 114 for transporting fluid from the reservoir 110 to the jet 100. A plurality of nozzles ~~120~~ <u>130</u> are disposed on the orifice layer 120, and each nozzle <u>130</u> corresponds to one chamber 122. In the present embodiment, each nozzle ~~120~~ <u>130</u> comprises an orifice 132 and four parallel bubble generators 134a, 134b, 134c and 134d. The bubble generators 134a and 134b are disposed on a first side 131 of the orifice 132, and the bubble generators 134c and 134d are disposed on a second side 133 of the orifice 132. In addition, the bubble generators 134a, 134b, 134c and 134d are electrically connected to a driving circuit (not shown), which drives the bubble generators 134a, 134b, 134c and 134d to generate bubbles in their corresponding chamber 122. The orifice 132 is formed on the orifice layer 120, and is positioned to correspond to the chamber 122. In the present embodiment, each of the bubble generators 134a, 134b, 134c and 134d is a heater that heats a fluid 116 inside the chamber 122 to generate bubbles. In a preferred embodiment of the present invention, the orifice layer 120 is composed of a low stress material with a residual stress lower than 300 MPa, such as a silicon rich nitride, to avoid the orifice layer 120 from being broken by the high

Received from < 886289237390 > at 7/18/03 3:34:33 AM [Eastern Daylight Time]

A1 end

residual stress incurred from fabricating the jet 100.

Please replace paragraph [0031] of the disclosure with:

A2 cont'd

Please refer to Fig.3 to Fig. 6. Fig. 3 is a top view of ~~a~~ one of the nozzles 130 shown in Fig.2. Fig.4 is a sectional view along line 4-4 of the jet 100 shown in Fig.2. Fig.5 is a cross-sectional diagram of the jet 100 shown in Fig.2 when a bubble is generated. Fig.6 is a cross-sectional diagram of the jet 100 shown in Fig.2 when a droplet is ejected. A first region 136 and a second region 138 are shown in Fig.3. There is a corresponding chamber 122 under the first region 136, and a manifold 114 under the second region 138. Heaters 134a, 134b, 134c and 134d are disposed on the first side 131 and the second side 133, wherein the first side 131 is closer to the manifold 114 than the second side 133 is to the manifold 114. As a result, the heaters 134a and 134b positioned on the first side 131 are closer to the manifold 114 than the heaters 134c and 134d positioned on the second side 133. As shown in Fig. 4 to Fig. 6, the driving circuit (not shown) drives the heaters 134a and 134b disposed on the first side 131 to heat the fluid 116 inside the chamber 122 to generate a first bubble 142 and a second bubble 144 in turn. When the first bubble 142 is generated, the first bubble 142 prevents the fluid 116 inside the chamber 122 from flowing into the manifold 114, and hence a virtual valve is formed that isolates the chamber 122 from the manifold 114. As a result, cross-talk between adjacent chambers 122 is prevented. After the first bubble 142 is generated, the heaters 134c and

18 Jul 2003 15:33 Winston Hsu 41526 886289237390 p.7

A2 end

134d are driven by the driving circuit to generate a second bubble 144. As the second bubble expands, the pressure of the fluid 116 inside the chamber 122 increases until a droplet 146 is ejected. As the first bubble 142 and the second bubble 144 continue to expand, they approach each other as shown in Fig. 6. When the two bubbles combine, they stop forcing the fluid 116. Momentum carries the completed droplet 146 from the orifice 132. The tail 148 of the droplet 146 is cut suddenly so that no satellite droplet is generated.

Please replace paragraph [0035] of the disclosure with:

A3 cont'd

Please refer to Fig.10, which is a top view of a nozzle 330 of a jet 300 according to a third embodiment of the present invention. Each nozzle 330 of the jet 300 comprises an orifice 332 and three bubble generators 334a, 334b and ~~334d~~ 334c which are electrically connected to a driving circuit (not shown). Each of the bubble generators is a heater, wherein the heaters 334a and 334b are disposed on a first side 331 of the orifice 332, and the heater 334c is disposed on a second side 333 of the orifice 332. As shown in Fig.10, the heater 334a is electrically connected to a signal wire 336a and connected to the heater 334c in series via a conducting wire 338. The heater 334c is electrically connected to a grounded wire 342. Thus, the signal wire 336a, the heater 334a, the conducting wire 338, the heater 334c and the grounded wire 342 form a circuit. The signal wire 336b, the heater 334b, the conducting wire 338, the heater 334c and the grounded wire 342 form another circuit. When the driving circuit drives the heaters 334a, 334b, 334c to generate first bubbles and second bubbles in their corresponding chamber, a voltage is applied to the signal

A3 end

wire 336a and the 336b. In a preferred embodiment of the present invention, the driving circuit can apply voltages to the signal wire 336a and 336b simultaneously so that the heaters 334a, 334b and 334c heat fluid inside the corresponding chamber to generate first bubbles and second bubbles. The driving circuit can also apply a voltage to either the conducting wire 336a or the conducting wire 336b so that only one of the heaters 334a and 334b heats fluid to generate a first bubble. In the present embodiment, the driving circuit controls the amount of energy supplied to the heaters 334a and 334b on the first side 331 of the orifice 332 to change the sizes of bubbles. As a result, droplets of different sizes are ejected from the orifice 332.